3 inches Facial & Fingerprint Recognition Series Product User Manual

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About This Manual

This document introduces the user interface and menu operations of 3 inches Facial & Fingerprint Recognition Series product. For installation, please refer to the **Installation Guide** or **Quick Guide**.

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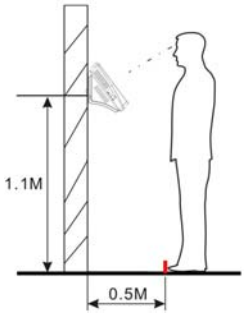
1. Instructions for Use

1.1 Standing Position, Posture and Face Expressions



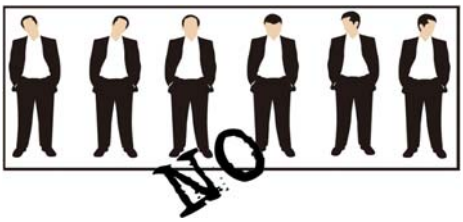
1. Recommended standing-distance from device:

For users 5-6 feet tall (1.55m-1.85m) we recommend users stand about 2 feet (0.5m) from the wall.

When viewing your image on the device display window, step away if your image appears too bright. Step closer if your image appears too dark.

2. Recommended face Expressions vs. poor Expressions:

3. Recommended Posture (pose) vs. poor Posture (pose):



Note: During enrollment and verification, try to have a relaxed unstrained face expression and stand upright.

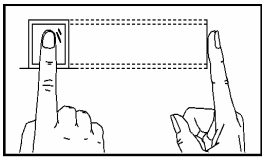
1.2 Enrollment Face Expressions

During the enrollment, position your head such way that your face appears in the center of the device display window, and follow the voice prompts "Focus eyes inside the green box". The user needs to move forward and backward to adjust the eyes position during the face registration. **The enrollment face expressions as follows:**

1.3 Finger Placement★

Recommended fingers: The index finger, middle finger or the ring finger is recommended; the thumb and little finger are not recommended (because they are usually clumsy when pressing on the fingerprint collection screen).

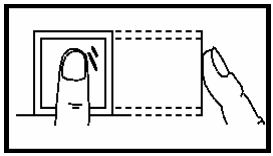
1. Proper finger placement:



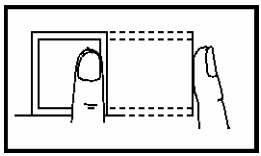
The finger must be flat to the surface and centered on the fingerprint sensor.

2. Improper finger placement:

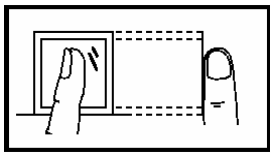
Not flat to the surface



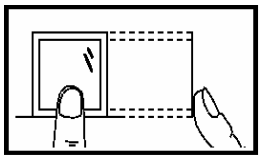
Off-center



Slanting



Off-center



Please enroll and verify your fingerprint by using the proper finger placement mode. We shall not be held accountable for any consequences arising out of the degradation in verification performance due to improper user operations. We shall reserve the right of final interpretation and revision of this document.

1.4 Use of the Touch Screen

Touch the screen with one of your fingertips or the edge of a fingernail, as shown in the following figure. A broad point of contact may lead to inaccurate pointing.

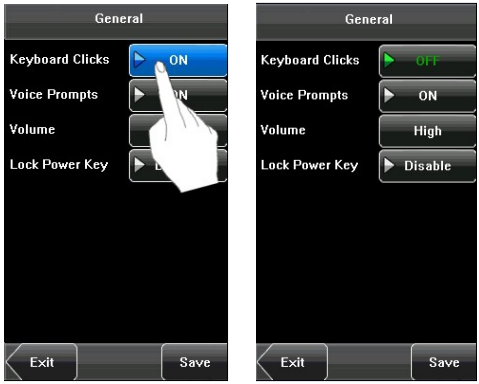
When the touch screen is less sensitive to the touch, you can perform a screen calibration through the following menu operations. Press [**Menu**] -> [**Auto Test**] -> [**Calibration**] on the screen and a cross icon will be displayed. After you touch the center of the cross at five locations on the screen correctly, the system will automatically returns to the **Auto Test** menu. Press [**Exit**] to return to the **Menu** interface. For details, see the description in 9. Auto Test. Smear or dust on the touch screen may affect the performance of the touch screen. Therefore, try to keep the screen clean and dust-free.

1.5 Touch Operations

1. Enter numbers: Press the [User ID] key. The system will automatically display the number input interface. After entering the user ID, press [OK] to save or press [X] to cancel and return to the previous interface.

2. Enter Text: Press the [Name] key. The system will automatically display the text input interface. After entering the user name, press [X] to save and return to the previous interface.

3. Modify parameters: Press the default value of a parameter and the system will automatically switch to another value of this parameter.

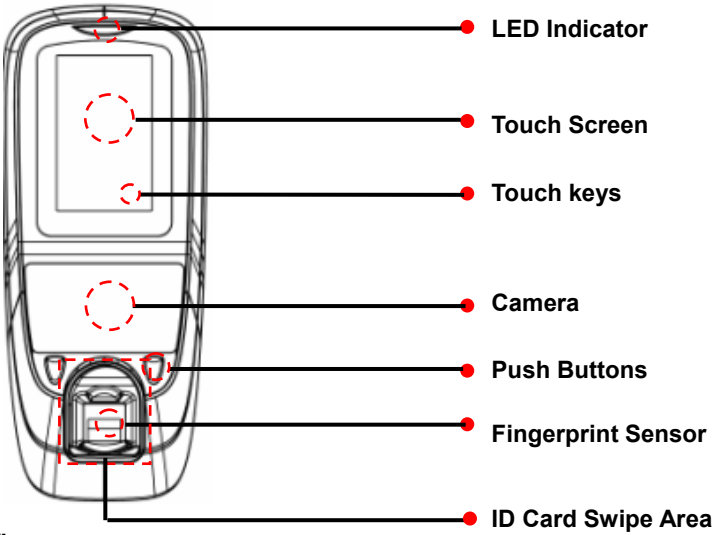


Note: The Enroll Fingerprint, User Access and 1: G is optional function, only some machines have.

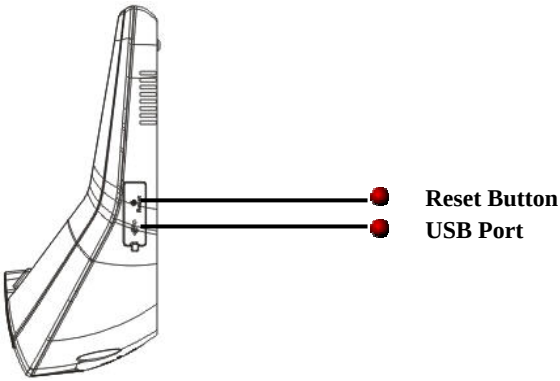
1.6 Appearance of Device

1. Type 1

(1) Front View

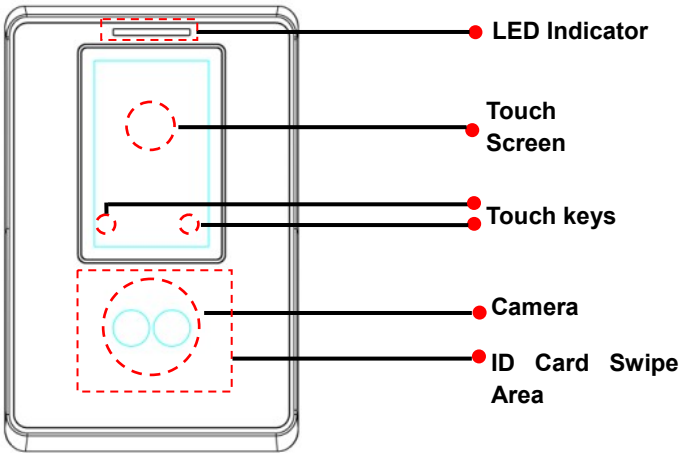


(2) Side View

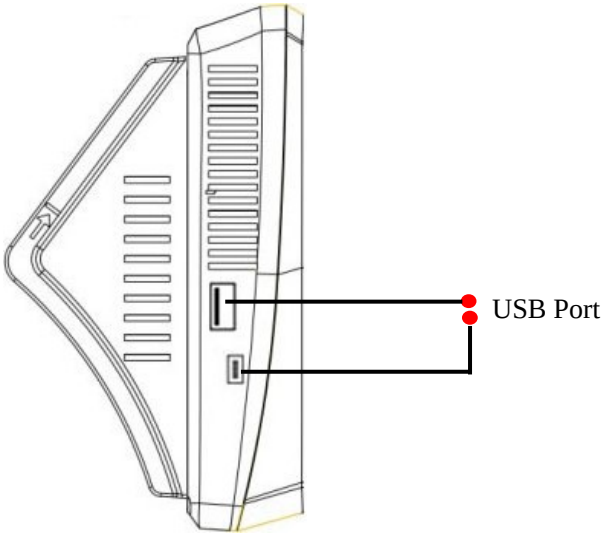


2. Type 2

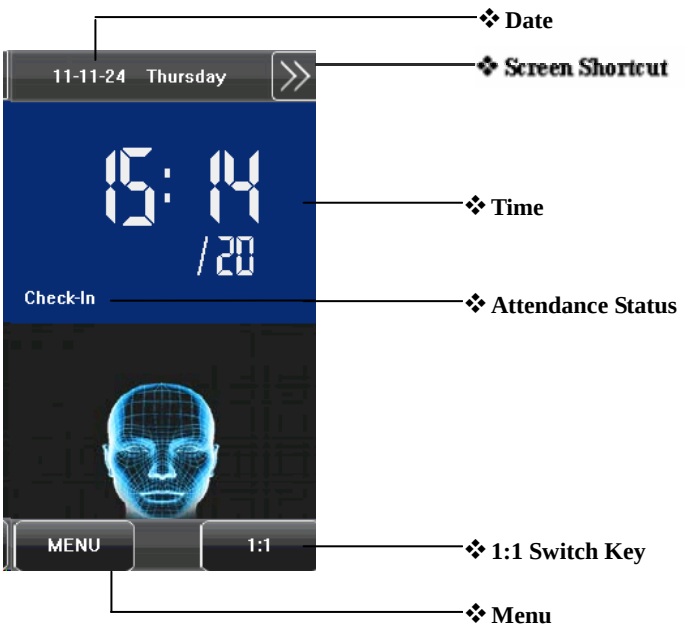
(1) Front View



(2) Side View



1.7 Main Interface



① **Date**: The current date is displayed.

②**Screen Shortcut Keys**: Press these shortcut keys to display the attendance status. Users can customize the function of each shortcut key. For details, see 6.6 Keyboard Definitions.

③**Time**: The current time is displayed. Both 12-hour and 24-hour time systems are supported.

④ **Attendance Status**: The current attendance status is displayed.

⑤ **1:1Switch Key**: By pressing this key, you can switch to the 1:1verification modes, and enter the digital input interface.

⑥ **Menu**: You can enter the main menu by pressing this key.

Note: 1. The Enroll Fingerprint, User Access, Door Bell Button and 1:1 Switch Button is an optional function, some machines have these function.

2. The 1: G is an optional function. If you need this function, please consult our commercial representatives or fore-sale technical support personal.

1.8 Verification Modes

1.8.1 Fingerprint Verification★

1. 1: N fingerprint verification

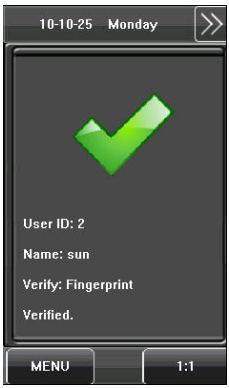
The terminal compares current fingerprint collected by the fingerprint collector with all fingerprint data on the terminal.

(1) To enter the fingerprint verification mode. The device automatically distinguishes face and fingerprint verification, just pressing finger on the collector. Shall be fingerprint authentication mode.

(2) Press your finger on the fingerprint sensor by adopting the proper finger placement. For details, see 1.3 Finger Placement.

(3) If the verification is successful, the device will prompt “Verified”.

(4) If the verification is not successful, the device will prompt “Please try again”.



2. 1:1 fingerprint verification

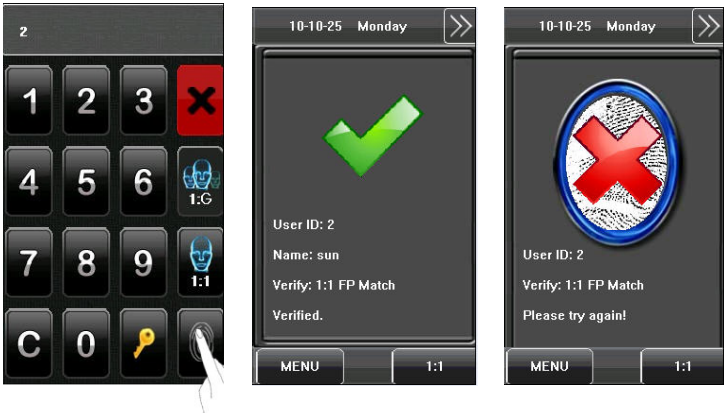
In the 1:1 fingerprint verification mode, the device compares current fingerprint collected through the fingerprint sensor with that in relation to the user ID entered through the keyboard. Adopt this mode only when it is difficult to recognize the fingerprint.

(1) Press [1:1] on the screen or [1:1] button to enter the 1:1 fingerprint recognition mode.

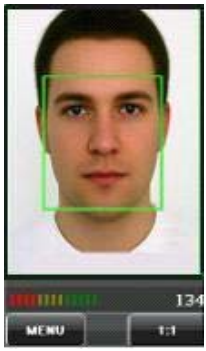
(2) Enter User ID or Group No., then press the "Fingerprint" icon to enter the 1:1 fingerprint recognition mode. If the prompt "Unregistered user!" is displayed, the user ID does not exist.

(3) Press your finger on the fingerprint sensor by adopting the proper finger placement. For details, see 1.3 Finger Placement.

(4) If the verification is successful, the device will prompt "Verified", otherwise the device will prompt "Please try again".



1.8.2 Face Verification



1. 1: N Face Verification★

The terminal compares current face image collected by the camera with all face data on the terminal.

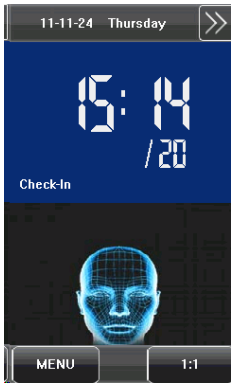
(1) The device automatically distinguishes face and fingerprint verification.

(2) Compare the facial in a proper way. For details, see 1.1 Standing Position, Posture and Face Expressions. Comparison of interface display the current image collected by the camera, an interface as shown in Figure 1 on the right will be displayed.

(3) If the verification is successful, an interface as shown in Figure 2 on the right will be displayed.

2. 1:1 face verification

In the 1:1 face verification mode, the device compares current face collected through the camera with that in relation to the user ID entered through the keyboard. Adopt this mode only when it is difficult to recognize the face.

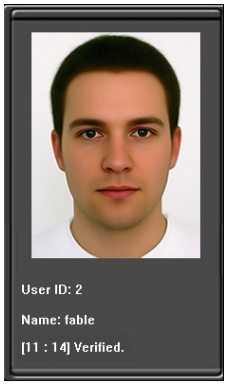


(1) Press [1:1] on the screen button to enter the 1:1 recognition mode.

(2) Enter User ID, then press the "1:1 Face" icon to enter 1:1 face recognition mode. If the prompt “Unregistered user!” is displayed, the user ID does not exist.

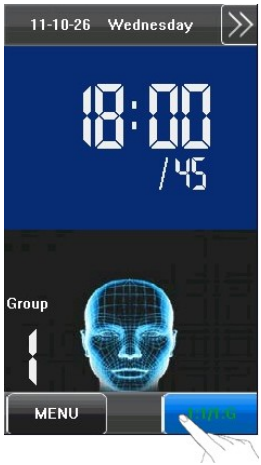
(3) Compare the face in a proper way. For details, see 1.1 Standing Position, Posture and Face Expression.

(4) If the verification is successful, the device will prompt "Verified". The system will return to the main interface if the verification is not passed within 20 seconds.



3. 1: G Face Verification★

When you open the 1: G Verify function, then you can make 1:G facial verification. For detail please see6.5 Log Settings



Current group No. (valid group number is 1-5)is displayed on the facial recognition interface. Users in current group can perform facial comparison directly. Users of another group can perform facial comparison only after entering the group No. or selecting it using the shortcut key. And the system will set the group entered or selected by users to be the current group instantly.

(1) Press [1:1/1: G] on the screen to enter the 1: G recognition mode.

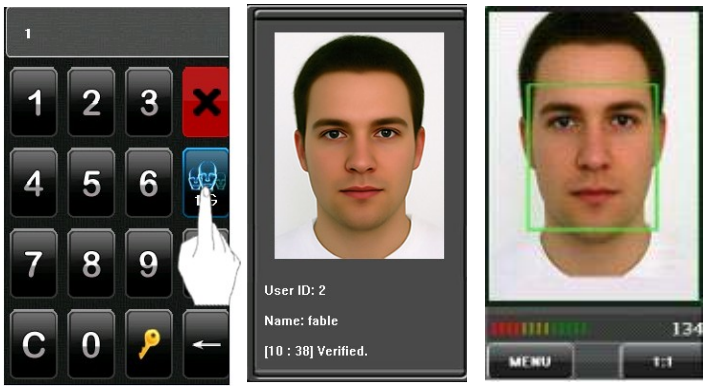
(2) Enter user Group No. and then press the "1: G" icon

(shown as following figure 1) to enter 1: G facial recognition mode.

(3) Compare the facial in a proper way. For details, see 1.1 Standing Position, Posture and Face Expressions. Current Group No. is displayed on the comparison interface, shown as following figure 2.

Note: Check whether you are in current group; if not, return to Step 1.

(4) If the verification is successful, shown as following figure 3.



Note: The **1: G** Face group is an optional function. Some machines have this function,but some have not. Face group function is untapped by Factory default, users can set in **System**--**Log Settings**--**1:G Verify** to open this function.

1.8.3 Password Verification

In the password verification mode, the device compares the password entered with that in relation to the user ID.

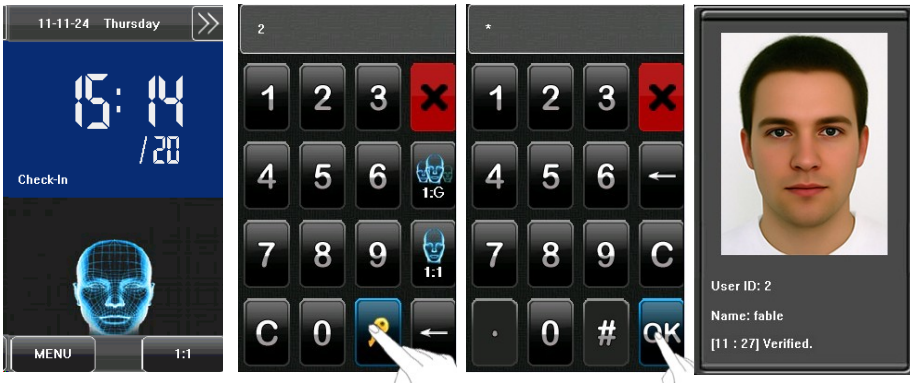
(1) Press [1:1] on the screen or [1:1] button to enter the password verification

mode.

(2) Enter the user ID and then press the "Key" icon to enter the password verification mode. If the prompt "Unregistered user!" is displayed, the user ID does not exist.

(3) Enter the password and press the "OK" icon to start the password comparison.

(4) If the verification is successful, the device will prompt "Verified", otherwise the device will prompt "Verify fail" and return to password input interface.



1.8.4 ID Card Verification★

Only the products with a built-in ID card module support the ID card verification. The products with a built-in ID card module support the following two verification modes:

ID Card Only: Users only need to swipe their ID cards for verification.

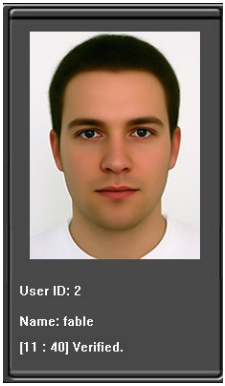
ID + Facial Verification: After passing the ID card verification, you also need to perform facial verification.

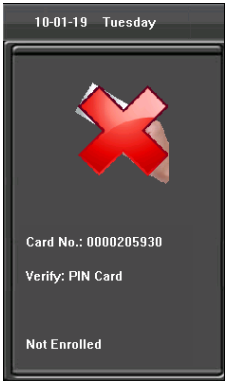
1. ID Card Only

1. Swipe your ID card on the card swipe area by adopting the proper way. For the card swipe area, see 1.6 Appearance of Device.

3. If the verification is successful, the device will prompt “Verified”.

4. If the verification is not successful, the device will prompt “Not Enrolled”.





Note: (1) The machines that have Photo ID function’s successful verification interface is shown as figure 1 above;

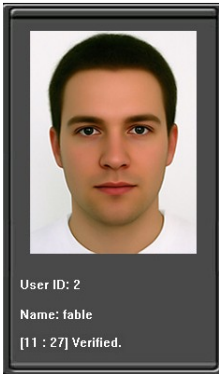
(2) The machines that don’t have Photo ID function’s successful verification interface is shown as figure 2 above.

2. ID + Facial Verification

(1) Swipe your ID card properly at the swiping area to enter the 1:1 facial verification mode.

(2) Compare the facial in a proper way. For details, see 1.1 Standing Position, Posture and Face Expressions

(3) If the verification is successful, an interface as shown in Figure 3 on the right will be displayed. The system will return to the main interface if the verification is not passed within 20 seconds.



1.8.5 Combination Verification★

The device supports up to 20 verification modes, including FACE&PIN/FP/RF/PW 、 FP&PW 、 FP&RF 、 FACE&FP 、 FACE&PW 、 FACE&RF、FP、PW、RF、FACE&PIN、FP/RF、PW/RF、FP/PW、PW&RF、PIN&FP 、 FP&PW&RF 、 PIN&FP&PW 、 FP&RF/PIN 、 FACE&FP&RF 、 FACE&FP&PW etc. For the detail, please refer toAppendix 8 Multi-combination Authentication Mode★

Note: RF means ID card verification. Only the products with the built-in ID card module support the ID card verification.

Here is the combination verification operation; we will use the FACE&FP verification for an example.

If you verify the fingerprint first and then the face, the operations are as follows.

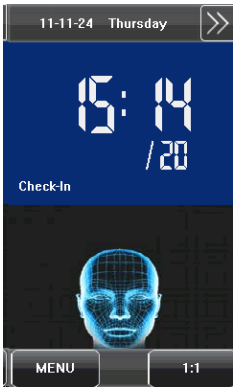
(1) The default main interface is the fingerprint verification mode, see the figure below.

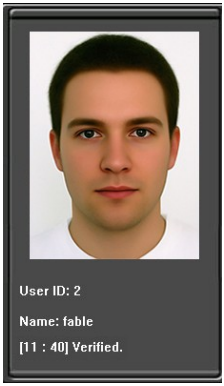
(2) Press your finger on the fingerprint sensor by adopting the proper finger

placement. For details, see 1.3 Finger Placement.

(3) If the verification is successful, the device will enter the 1:1 face recognition mode. Compare the face in a proper way. For details, see 1.1 Standing Position, Posture and Face Expression.

(4) If the verification is successful, the device will prompt “Verified”. The system will return to the main interface if the verification is not passed within 20 seconds.



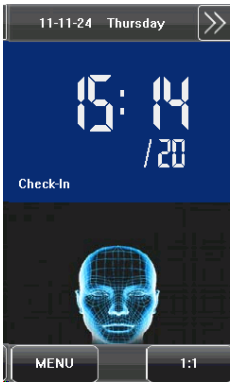


Otherwise, the FACE&FP combination verification can perform such as FACE (1: N) + FP, PIN + FACE (1:1) + FP, PIN + FP (1:1) + FACE etc. The operation is similar to the procedure introduced before.

2. Main Menu

There are two types of rights respectively granted to two types of users: the **Ordinary users** and **administrators**. Ordinary users are only granted the rights of face, fingerprint, password or card verification, while administrators are granted access to the main menu for various operations apart from having all the privileges granted to ordinary users.

Press [**Menu**] on the initial interface to access the main menu, as shown in the following figure:



The main menu includes nine sub menus:

Add User: Through this submenu, you can add a new user and input the information on the device, including the user ID★, name, fingerprint★, face, card★, password, rights, group No. ★ and user access★.

User Mgt.: Through this submenu, you can browse the user information stored on the device, including the user ID, name, fingerprint★, face, card★,

password, rights, group No★. and user access★. Here you can also add, modify or delete a user's information.

Comm.: Through this submenu, you can set related parameters for communication between the device and PC, including the IP address, gateway, subnet mask, baud rate★, device No. and communication password.

System: Through this submenu, you can set system-related parameters, including the basic parameters, interface parameters, fingerprint★, face and attendance parameters, Keyboard definitions, Access settings★, firmware update etc. to enable the device to meet the user's requirements to the greatest extent in terms of functionality and display.

Data Mgt.: Through this submenu, you can perform management of data stored on the device, for example, deleting the attendance records, all data, clear administrator, restore to factory settings and query records.

Date/Time: Through this submenu, you can set the alarm time and duration, or set the Bell.

Auto Test: This submenu enables the system to automatically test whether functions of various modules are normal, including the screen, sensor, voice, face, keyboard, clock tests and screen calibration.

Dn/Upload: Through this submenu, you can download user information and attendance data stored in the device through a USB disk to related software or other fingerprint recognition equipment.

Sys Info.: Through this submenu, you can browse the records and device information.

Any user can access the main menu by pressing the [**Menu**] key if the system does not have an administrator. After administrators are configured on the device, the device needs to verify the administrators' identity before granting them access to the main menu. To ensure device security, it is recommended to set an administrator when using the terminal initially. For detailed operations, see **3.8 Modifying User Right.**

3. Add User

Press [Add] on the [User Mgt.] interface to display the [Add User] interface as shown below.

User ID: Enter a user ID. 1 to 9 digits user IDs are supported by default.

Name: Enter a user name. 12 characters user names are supported by default.

Fingerprint★: Enroll a user's fingerprint and the device displays the number of enrolled fingerprints. A user can enroll 10 fingerprints at maximum.

Password: Enroll a user's password. The device supports 1-8 digit passwords by default.

Face: Enroll a user's face.

Group No.★: Setting in the group of user .

Role: Set the rights of a user. A user is set to **ordinary user** by default and can also be set to **administrator**. Ordinary users are only granted the rights of face, fingerprint or password verification, while administrators are granted access to the main menu for various operations apart from having all the privileges granted to ordinary users.

Photo★: Enroll a user's photo. During user verification is success, the user's photo is displayed on screen.

User Access★: Set the lock control and access control parameters.

3.1 Entering a User ID

The device automatically allocates an ID starting from 1 for every user in sequence. If you use the ID allocated by the device, you may skip this section.

1. Press [User ID] on the [Add User] interface to display the user ID management interface.

Tip: The user ID can be modified during initial enrollment, but once enrolled, it cannot be modified.

2. On the displayed keyboard interface, enter a user ID and press [OK]. If the message “The user ID already exists!” is displayed, enter another ID.

Tip: The device supports 1 to 9 digits user IDs by default. If you need to extend the length of current user ID numbers, please consult our commercial representatives or technical pre-sales.

3. After the user ID is entered, press [Save] to save the current information and return to the previous interface. Press [Exit] to return to the previous interface without saving the current information.

3.2 Entering a Name

Use T9 input method to enter the user name through the keyboard.

1. Press [Name] on the [Add User] interface to display the name input interface.

2. On the displayed keyboard interface, enter a user name and press [X].

For details of operations on the keyboard interface, see Appendix 1 T9 Input Instructions.

3. After the user name is entered, press [Save] to save the current information and return to the previous interface. Press [Exit] to return to the previous interface without saving the current information.

✍ **Tip:** The device supports the 1 to 12 characters names by default.

3.3 Enrolling a Fingerprint★

1. Press [Fingerprint] on the [Add User] interface to display the [Enroll Fingerprint] interface.
2. On the displayed [Enroll Fingerprint] interface, place your finger on the fingerprint sensor properly according to the system prompt. For details, see 1.3 Finger Placement.
3. Place the same finger on the fingerprint sensor for three consecutive times correctly. If the enrollment succeeds, the system will display a prompt message and automatically return to the [Add User] interface. If the enrollment fails, the system will display a prompt message and return to the [Enroll Fingerprint] interface. In this case, you need to repeat the operations of step 2.
4. You can enroll the backup fingerprint by pressing [Fingerprint] again. A user can enroll 10 fingerprints at maximum.
5. Press [Save] to save the current information and return to the previous interface. Press [Exit] to return to the previous interface without saving the current information.

Enroll Fingerprint(201-0)
Place Finger...
Quality
Exit

Enroll Fingerprint(201-0)
Enrolled Successfully
Quality 70
Exit

Add User
User ID: 2
fablc
Fingerprint
Password
Card
Face
Group No.: 1
Role:User
Photo
User Access
Exit
Save

3.4 Enrolling a Password

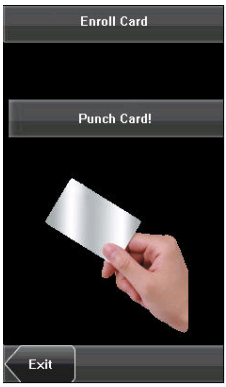
1. Press [**Password**] on the [**Add User**] interface to display the password management interface.
2. On the displayed keyboard interface, enter a password and press [**OK**]. Re-enter the password according to the system prompt and then press [**OK**].

Tip: The device supports 1-8 digit passwords by default.

3. After the password is entered, an interface is displayed as shown below. Press [Save] to save the current information and return to the previous interface. Press [Exit] to return to the previous interface without saving the current information.

3.5 Enrolling an ID card★

1. Press [Card] on the [Add User] interface to display the [Enroll Card] interface.
2. The [Punch Card!] interface pops up as shown below. Swipe your ID card properly in the swiping area. For details, see 1.6 Appearance of the Device.
3. If the card passes the verification, the device will display a prompt message "Read Successfully! Card No.: **********", and returns to the [Add User] interface.
4. Press [Save] to save the current information and return to the previous interface. Press [Exit] to return to the previous interface without saving the current information.



Note: 3 inches Facial & Fingerprint Recognition support Mifare card function. It is an option function, if you want to customize the Mifare card function, please consult our commercial representatives or pre-sales technical support engineers.

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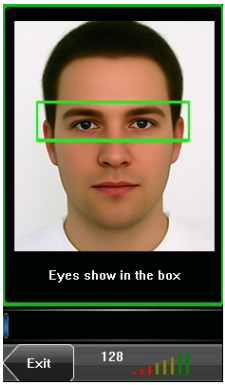
3.6 Enrolling a Face

1. Press [Face] on the [Add User] interface to display the face enrollment interface.

2. On the displayed face enrollment interface, turn your head to the left and right slightly, raise and lower your head according to the voice prompts, so as to enroll different parts of your face into the system to assure the accurate verification. See 1.2 Enrollment Face Expressions.

3. If your face image is enrolled successfully, the system will display a prompt message and automatically return to the [Add User] interface.

4. Press [Save] to save the current information and return to the previous interface. Press [Exit] to return to the previous interface without saving the current information.

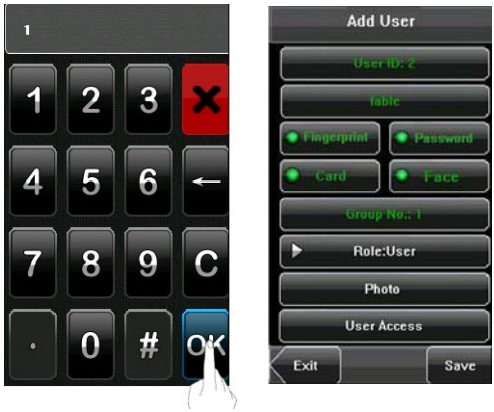


3.7 Entering a Group No.★

1. Press [Group No.] on the [Add User] interface to display the group No. management interface.

2. On the displayed keyboard interface, enter your group No. and press [OK].

3. After the group No. is entered, an interface is displayed as shown below. Press [Save] to save the current information and return to the previous interface. Press [Exit] to return to the previous interface without saving the current information.



3.8 Modifying User Rights

Note: There are two types of rights respectively granted to two types of users: the **ordinary users** and **administrators**. Ordinary users are only granted the rights of face, fingerprint, or password verification, while administrators are granted the access to the main menu for various operations apart from having all the privileges granted to ordinary users.

1. On the [Add User] interface, press [Role: User] to change the user to an administrator.

2. After the modification is done, the interface is as shown below. Press [Save] to save the current information and return to the previous interface; press [Exit] to return to the previous interface without saving the current information.

3.9 Enroll Photo★

If you had enrolled your photo in the system, the system will display your enrolled photo in addition to your ID and name after you pass the verification.

1. Press [Photo] on the [Add User] interface to display the photo enrollment interface.

2. On the photo enrollment interface, stand naturally in front of the screen. For details, see 1.1 Standing Position, Posture and Face Expression. Press [Capture] to capture the photo.

3. After taking the photo, press [Exit] to return to the previous interface.

4. After the photo is taken, press [Save] to save the current information and return to the previous interface; press [Exit] to return to the previous interface without saving the current information.

3.10 User Access Settings★

Press [User Access] on the [Add User] interface to display the user access settings interface.

User Access settings are to set the user's rights to verify and open the door, such as the Verify Type, Time Zone and Duress FP management.

1. Verify Type:

(1) Group Verify Mode: If the user uses the group verify mode that he belong to.

(2) Individual verify mode: Select the verification mode for this user instead of the group verify mode. That will not affect other users in this group.

Note:

(1) Only the products with the built-in ID card module support the ID card verification.

(2) For the verify type, please refer to Appendix 4 Multi-combination Authentication Mode. Only some types of devices support Multi-combination authentication mode.

2. Time Zone:

(1) Group Time Zone: If the user uses the group time zone that he belong to.

(2) Individual time zone: Select the time zone of this user instead of the group time zone. That will not affect other users in the group.

3. Duress FP:

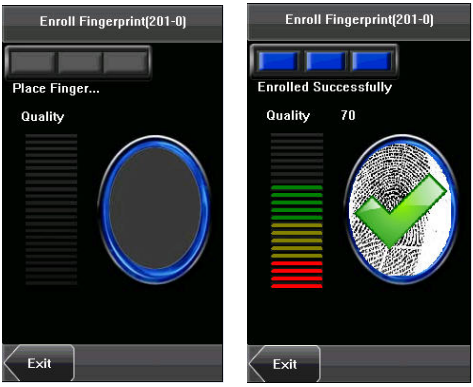
User can register a new duress fingerprint or cancel registered duress fingerprints. If a finger is registered duress fingerprints, when compare it, will trigger the duress alarm signal.

If cancel the duress fingerprints, does not delete the fingerprints data, still can use the fingerprints process normal comparison.

Duress FP management:

(1) Register Duress FP:

Press [Reg. Duress FP] on the [User Access] interface to display the [Enroll Fingerprint] interface. On the displayed [Enroll Fingerprint] interface, place your finger on the fingerprint sensor properly according to the system prompt. For details, see 1.3 Finger Placement.



(2) Cancel duress FP:

Press [Can. Duress FP] on the [User Access] interface to po-pup the confirm message. Select [YES] to delete the enrolled duress FP, otherwise select [NO] to cancel the operation.

4. User Management

Browse the user information, including the user ID, name, fingerprint★, face, ID card★, password, rights, group No.★ and user access settings★ through this interface. To add, edit or delete the basic information of users.

Press [User Management] on the main menu interface to display the user management interface.

This user is an administrator.

Note: The users are listed in alphabetical order by last name. If you press a user name, you can access the editing interface of this user to edit or delete the related user's information.

4.1 Edit a User

Press a user name from the list to enter the [User Info] interface.

The User ID cannot be modified, and the other operations are similar to those performed in add a user. You can re-enroll your fingerprint★ and face, change your password, modify the management rights and Group No.★

For example: Change the user rights from Administrator to ordinary user. As shown below.

4.2 Delete a User

On the [User Info] interface, you can delete all or partial user information.

1. Press [Delete] to delete a user.

2. On the displayed interface, click [YES] to delete the current user or [NO] to return to the previous interface.

3. On the [User Info] interface, press [Name], [Fingerprint], [Face] or [Password] to delete the related user information and to re-enroll the new information follow the device prompt.

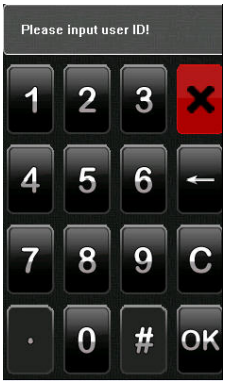
4.3 Query a User

To facilitate administrators to locate a user quickly from a large number of enrolled users, the device enables to query by “User ID”.

User ID Query:

1. Press [Query] on the [User Management] interface to display the User ID query interface.

2. Enter the user ID on the displayed interface, and click [OK] to locate the cursor on the desired user.



5. Communication Settings

You can set related parameters for the communication between the device and PC, including the **IP address**, **Gateway**, **Subnet Mask**, **Baud Rate★**, **Device ID**, and **Comm Key**.

☺**Note: The comm. (RS232/RS485), Wiegand In and Wiegand Out are optional function, only some machines have these functions.**

5.1 Network Settings

When the device communicates with the PC over **Ethernet**, you need to check the following settings:

IP Address: The IP address is 192.168.1.201 by default and can be changed as required.

Subnet Mask: The subnet mask is 255.255.255.0 by default and can be changed as required.

Gateway: The gateway is 0.0.0.0 by default and can be changed as required.

(RS232/RS485)★, you need to check the following settings:

RS232★: This parameter is used to enable or disable the RS232 communication. If the RS232 communication cables are used, set this parameter to "ON".

RS485★: This parameter is used to enable or disable the RS485 communication. If the RS485 communication cables are used, set this parameter to "ON".

Baud Rate★: This parameter is used to set the baud rate for the communication between the device and the PC. It includes five options: 9600, 19200, 38400, 57600, and 115200. The higher baud rate is recommended for the RS232 communication to achieve high speed communication, while the lower baud rate is recommended for the RS485 communication to achieve stable low-speed communication.

Device ID: This parameter is used to set the ID of device from 1 to 254. If the RS232/RS485 communication is adopted, you need to enter the device ID on the software communication interface.

Comm. Key: To enhance the security of attendance data, you can set a password for the connection between the device and PC. Once the password is set, you can connect the PC with the device to access the attendance data only after entering the correct password. The default password is 0 (that is, no password). Once a password is set, you need to enter this password before connecting the PC software with the device; otherwise, the connection is unsuccessful. 1 to 6 digits passwords are supported.

Considering the massive data including the fingerprint and face templates stored in the device, it is recommended to transfer the data between the device and PC over network to enhance the transfer speed.

5.2 Serial Port Settings

When the FFR terminal communicates with the PC over serial ports (RS232/RS485), you need to check the following settings:

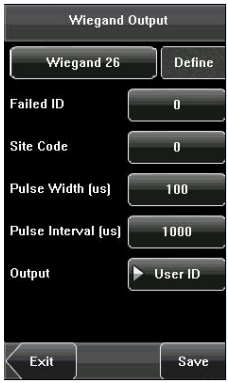
RS232: This parameter is used to enable or disable the RS232 communication. If the RS232 communication cables are used, set this parameter to “ON”.

RS485: This parameter is used to enable or disable the RS485 communication. If the RS485 communication cables are used, set this parameter to “ON”.

Baud Rate: This parameter is used to set the baud rate for the communication between the FFR terminal and the PC. It includes five options: 9600, 19200, 38400, 57600, and 115200. The high baud rate is recommended for the RS232 communication to achieve high communication speed, while the low baud rate is recommended for the RS485 communication to achieve stable low-speed communication.

5.3 Wiegand Output★

Wiegand Format: The system has two built-in formats **Wiegand 26-bits** and **Wiegand 34-bits**, and also supports the format customization function to meet individualized requirements.



Failed ID: Refers to the value output by the system upon verification failure. The output format is subject to the setting of “**Wiegand Format**”. The default value scope of **Failed ID** is 0–65535.

Site Code: The site code is used for a customized Wiegand format. The site code is similar to the device ID, but the site code is customizable and can be duplicated among different devices. The default value scope of the Site Code is 0–255.

Pulse Width: Refers to the width of the Wiegand pulse in microseconds. The default value scope of the pulse width is 1–1000.

Pulse Interval: Refers to the interval of the Wiegand pulse in microseconds. The default value scope of the pulse width is 1–10000.

Output: Refers to the contents output upon successful verification. You can select the “User ID” or “Card Number” as the output.

5.3.1 Wiegand 26-bits Output Description

The system has a built-in Wiegand 26-bits format. Press [**Wiegand Format**], and select “Standard Wiegand 26-bits”.

The composition of the Wiegand 26-bits format contains 2 parity bits and 24 bits for output contents (“User ID” or “Card Number”). The binary code of 24-bits represent up to 16,777,216 (0–16,777,215) different values.

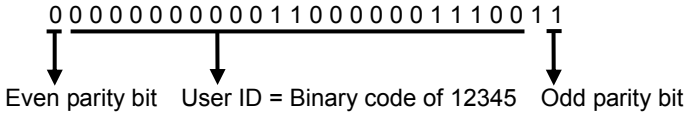
1	**2**	**25 26**
Even parity	User ID/Card Number	Odd parity bit

Definition of Fields:

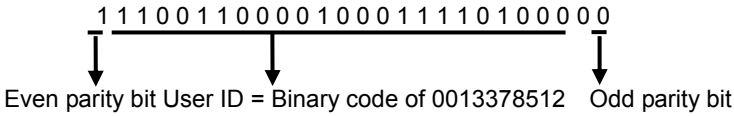
Field	**Meaning**
Even parity bit	Judged from bit 2 to bit 13. The **even parity bit** is 1 if the character has an even number of 1 bit; otherwise, the even parity bit is 0.
User ID/ Card Number (bit 2-bit 25)	User ID/Card Number (Card Code, 0–16777215) Bit 2 is the Most Significant Bit (MSB).
Odd parity bit	Judged from bit 14 to bit 25. The **odd parity bit** is 1 if the character has an even number of 1 bit; otherwise, the odd parity bit is 0.

For example, for a user with the user ID of 12345, the enrolled card number is 0013378512 and the failed ID is set to 1.

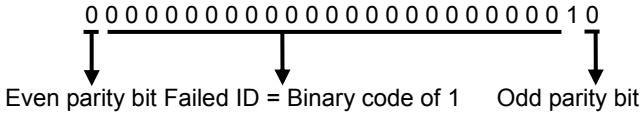
1. When the output is set to “User ID”, the Wiegand output is as follows upon successful verification:



2. When the output is set to “Card Number”, the Wiegand output is as follows upon successful verification:



3. The Wiegand output is as follows upon verification failure:



✍ **Note:** If the output contents exceed the scope allowed for the Wiegand format, the last several bits will be adopted and first several bits are automatically discarded. For example, the user ID 888 888 888 is 110 100 111 110 110 101 111 000 111 000 in binary format. Wiegand26 only supports 24 bits, that is, it only outputs the last 24 bits, and first 6 bits “110 100” are automatically discarded.

5.3.2 Wiegand 34-bits Output Description

The system has a built-in Wiegand 34-bits format. Press [**Wiegand Format**], and select “Standard Wiegand 34-bits”.

The composition of the Wiegand 34-bits format contains 2 parity bits and 32 bits for output contents (“User ID” or “Card Number”). The binary code of 32-bits represent up to 4,294,967,296 (0–4,294,967,295) different values.

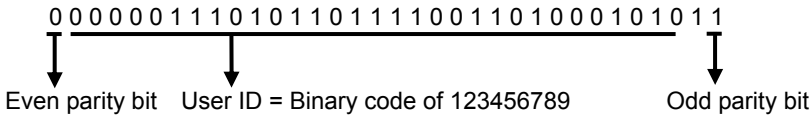
1	2	33 34
EvenParityBit	User ID/Card Number	Odd parity bit

Table 2 Definition of Fields

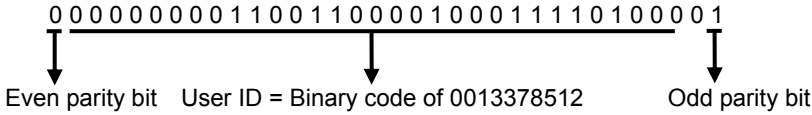
Field	Meaning
Even parity bit	Judged from bit 2 to bit 17. The **even parity bit** is 1 if the character has an even number of 1 bit; otherwise, the even parity bit is 0.
User ID/Card Number (bit 2-bit 33)	User ID/Card Number (Card Code, 0–4,294,967,295) Bit 2 is the Most Significant Bit (MSB).
Odd parity bit	Judged from bit 18 to bit 33. The **odd parity bit** is 1 if the character has an even number of 1 bit; otherwise, the odd parity bit is 0.

For example, for a user with the user ID of 123456789, the enrolled card number is 0013378512 and the failed ID is set to 1.

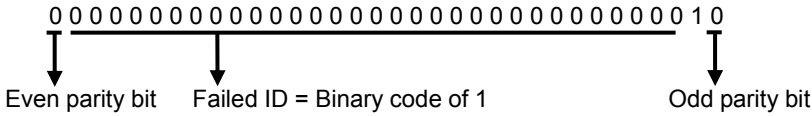
1. When the output is set to “User ID”, the Wiegand output is as follows upon successful verification:



2. When the output is set to “Card Number”, the Wiegand output is as follows upon successful verification:



3. The Wiegand output is as follows upon verification failure:



5.3.3 Customized Format

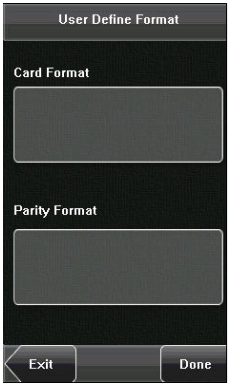
Apart from the two built-in formats **Wiegand 26-bits** and **Wiegand 34-bits**, the system also supports the format customization function to meet individualized requirements.

The customized format consists of two character strings: the **data bits** and **parity bits**. These two character strings need to be defined separately. **Data bits** define the number of binary bits output by Wiegand as well as the meaning of each bit. The data bits output by Wiegand can be a card number (C), site code (s), facility code (f), manufacturer code (m) and parity bits (p). **Parity bits** define the check mode of each bit in data bits and ensure the correctness of data bits during transfer through the parity check. The parity bits can be set to odd check (o), even check (e) and both odd check and even check (b). There is a one-to-one correspondence relationship between the data bits and parity bits.

For example, the Wiegand26 can be customized as follows:

Definition of data bits: psssssssscccccccccccccccp

Definition of parity bits: eeeeeeeeeeeeeooooooooooooo



Note: Wiegand26 consists of 26 bits. The first bit is the even parity bit of bits 2 to 13; the 26th bit is the odd parity bit of bits 14 to 25; the second to the ninth bits are the site code; the 10th to the 25th bits are the card number.

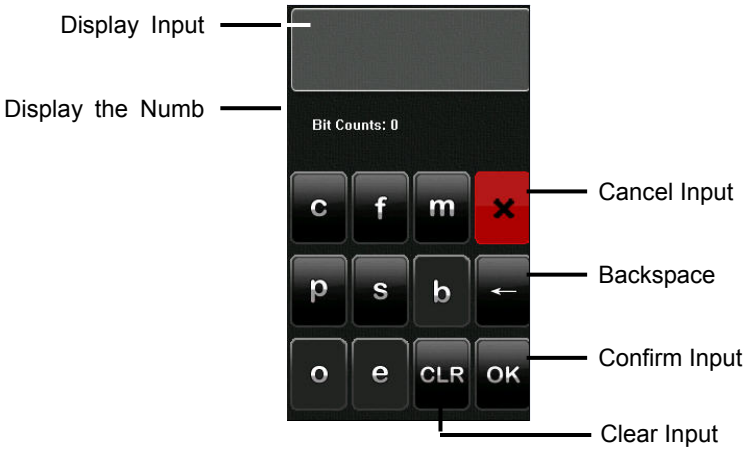
For details about the Wiegand protocol, see Appendix 3 Introduction of Wiegand.

To customize Wiegand format, proceed as follows:

(1) Select [Define Format] and the [Set] key is then enabled.

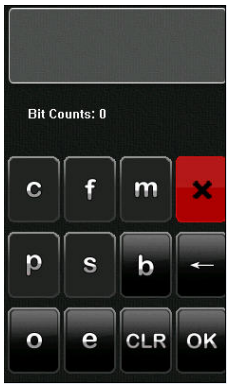
(2) Press [Set] to display the [User Define Format] interface, as shown in the following figure:

(3) Click the entry box below “Card Format” to display the following interface:



Characters used to define data bits and their meanings:

c: Indicates the card number, that is, the output contents, it can be set to User ID/Card Number through menu operations.



f: Indicates the facility code which is 0 by default. It is not configurable. To modify it, please contact the equipment supplier.

m: Indicates the manufacturer code which is 0 by default. It is not configurable. To modify it, please contact the equipment supplier.

p: Indicates the parity position.

s: Indicates the site code which can be set from 0 to 255 by default.

(4) Click the entry box below "Parity Format" to display the following interface:

Characters used to define parity bits and their meanings:

o: Indicates the odd check, that is, there is an odd number of 1's in the bit sequence (including one parity bit). For example, for 1000110(0), the parity bit is 0 and there are already three 1's. After 0 is suffixed to 1000110, there is still an odd number of 1's.

e: Indicates the even check, that is, there is an even number of 1's in the bit sequence (including one parity bit). For example, for 1000110(1), the parity bit is 1 and there are already three 1's. After 1 is suffixed to 1000110, there is an even number of 1's.

b: Indicates both odd check and even check.

For example, Definitions of several universal Wiegand formats.

Wiegand34

Data bits:

pccccccccccccccccccccccccccccccp

Parity bits:

eeeeeeeeeeeeeeeeoooooooooooooooo

Note: Wiegand34 consists of 34 bits. The first bit is the even parity bit of bits 2 to 17; the 34th bit is the odd parity bit of bits 18 to 33; the second to the ninth bits are the site code; the 10th to the 25th bits are the card number.

Wiegand37a

Data bits: pmmmmsssssssssssscccccccccccccccccccp

Parity bits: oeobeobeobeobeobeobeobeobeobeobeobeoe

Note: Wiegand37a consists of 37 bits. The first bit is the odd parity bit of bits 3, 4, 6, 7, 9, 10, 12, 13, 15, 16, 18, 19, 21, 22, 24, 25, 27, 28, 30, 31, 33, 34 and 36; the 37th bit is the odd parity bit of bits 2, 4, 5, 7, 8, 10, 11, 13, 14, 16, 17, 19, 20, 22, 23, 25, 26, 28, 29, 31, 32, 34 and 35; bits 4, 7, 10, 13, 16, 19, 22, 25, 28, 31 and 34 participate in both odd and even parity check. Bits 2 to 5 are manufacturer code; bits 6 to 17 are the site code; bits 18 to 36 are the card number.

Wiegand37

Data bits:

pmmmfffffffffffssssssccccccccccccccccp

Parity bits:

eeeeeeeeeeeeeeeeeeoooooooooooooooooooo

Note: Wiegand37 consists of 37 bits. The first bit is the even parity bit of bits 2 to 18; the 34th bit is the odd parity bit of bits 19 to 36; the second to the fourth bits are the manufacturer code; the 5th to the 14th bits are facilitate code; the 15th to the 20th bits are the site code; the 21st to the 36th bits are the card number.

Wiegand50

Data bits: pssssssssssssssssscccccccccccccccccccccccccccccccccp

Parity bits:

eeee

6. System Settings

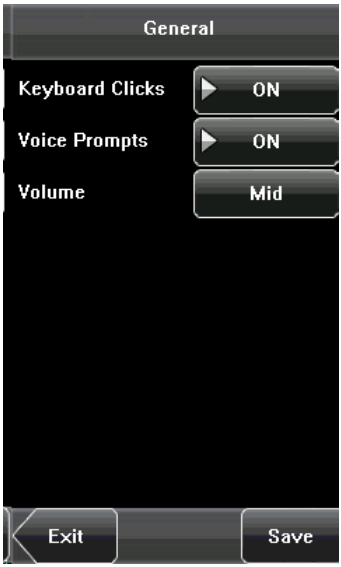
Through the [System] menu, you can set system-related parameters, including the General, Display, Fingerprint★, Face, Log settings, Shortcut Def, Access Control Set★, and Firmware Update, to enable the device to meet user requirements to the greatest extent in terms of functionality and display.

6.1 General Parameters

Keyboard Clicks: This parameter is used to set whether to generate beep sound in response to every keyboard touch. Select “ON” to enable the beep sound, and select “OFF” to mute.

Voice Prompts: This parameter is used to set whether to play voice prompts during the operation of the device. Select “ON” to enable the voice prompt, and select “OFF” to mute.

Volume : This parameter is used to adjust the volume of voice prompts.

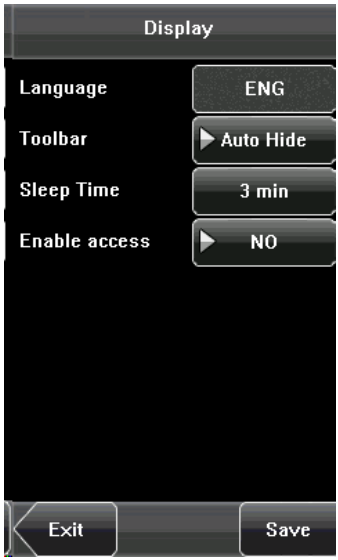


6.2 Interface Parameters

Language: This parameter is used to display the current language used by the device. For multilingual-capable devices, you can switch between different languages through this parameter. Then you should restart the device.

Toolbar: This parameter is used to display the style of the shortcut keys on the initial interface. It can be set to “Auto Hide” and “Permanent Display”. By selecting “Auto Hide”, you can manually display or hide the toolbar. By selecting “Permanent Display”, you can permanently display the toolbar on the initial interface.

Sleep Time (S): This parameter is used to specify a period after which the device is put in sleep mode if no operation within this period. You can wake up the device from sleep by pressing any key or touching the screen. Numerical range in 1 ~ 30 minutes, the factory default for 3 minutes.



6.3 Fingerprint Parameters★

1: 1 Threshold: This parameter is used to set the threshold of matching between the current fingerprint and the fingerprint template enrolled in the device in the 1:1 verification mode. If the similarity between the current fingerprint and the fingerprint template enrolled in the device is larger than this threshold, the matching is successful; otherwise, the matching is not successful.

1: N Threshold: This parameter is used to set the threshold of matching between the current fingerprint and the fingerprint template enrolled in the device in the 1: N verification mode. If the similarity between the current fingerprint and the fingerprint template enrolled in the device is larger than this threshold, the matching is successful; otherwise, the matching is not successful.

The recommended thresholds are as follows:

(FRR)	(FAR)	Threshold	
		1: N	1: 1
High	Low	45	25
Medium	Medium	35	15
Low	High	25	10

Fingerprint Image: This parameter is used to set whether to display the fingerprint image on the screen during fingerprint enrollment or comparison. It has four options:

Show for Enroll: Display the fingerprint on the screen in enrolling process.

Show for Match: Display the fingerprint on the screen in verification process.

Always Show: Display the fingerprint on the screen in enrolling and verifying process.

Never Show: Never display the fingerprint on the screen in any case.

6.4 Face Parameters

1: 1 Threshold: This parameter is used to set the threshold of matching between the current face and the face template enrolled in the device in the 1:1 verification mode. If the similarity between the current face and the face template enrolled in the device is larger than this threshold, the matching is successful; otherwise, the matching is not successful. The valid value scope is 70-120. The higher the threshold, the lower the FAR and the higher the FRR are, and vice versa.

1: N Threshold: This parameter is used to set the threshold of matching between the current face and the face template enrolled in the device in the 1: N verification mode. If the similarity between the current face and the face template enrolled in the device is larger than this threshold, the matching is successful; otherwise, the matching is not successful. The valid value scope is 80-120. The higher the threshold, the lower the FAR and the higher the

FRR are, and vice versa.

The recommended thresholds are as follows:

FRR	FAR	Threshold	
		1: N	1:1
High	Low	85	80
Medium	Medium	82	75
Low	High	80	70

Exposure: This parameter is used to set the exposure value of the camera.

Quality: This parameter is used to set a quality threshold for the face images obtained. The device accepts the face images and processes them by adopting the face algorithm when their quality is higher than the threshold; otherwise, it filters these face images.

Note: Improper adjustment of the Exposure and Quality parameters may severely affect the performance of the device. Please adjust the Exposure parameter only under the guidance of the after-sales service personnel from our company.

6.5 Log Settings

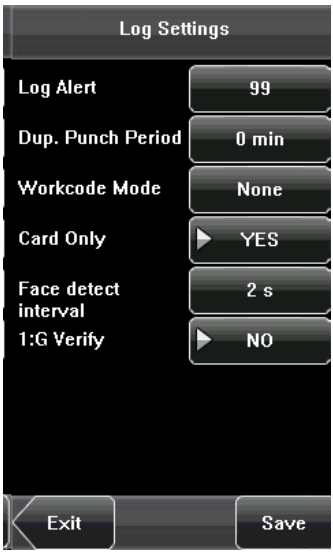
Log Alert: When the available space is insufficient to store the specified number of attendance records, the device will automatically generate an alarm (Value scope: 1-99).

Dup. Punch Period (m): If a user's attendance record already exists and the user punches in again within the specified period (unit: minute), the second attendance record will not be stored (Value scope: 1-60 minutes).

Card Only★: If this parameter is set to "YES", you pass the verification only after card verification. If this parameter is set to "NO", you need to verify your face or fingerprint after card verification.

Face interval: According your need to set it. Then default value is o, namely don't have interval.

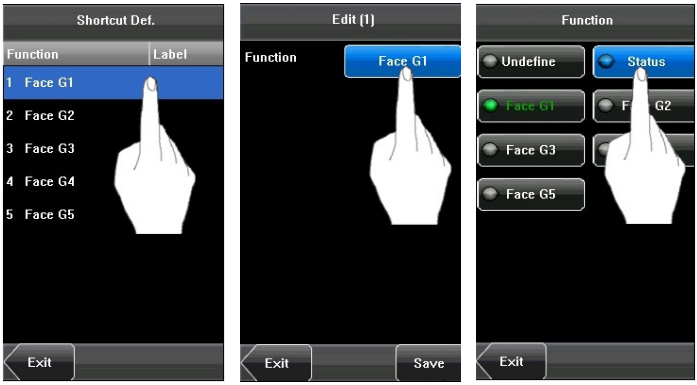
1: G Verify★: Select it as **YES** or **NO**, namely set whether or not start this function.



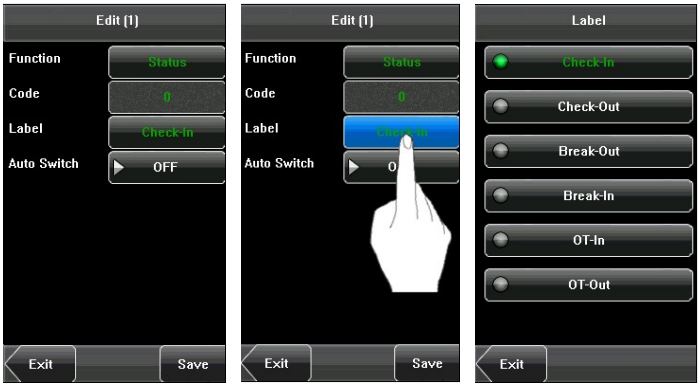
6.6 Shortcut Definitions

Define touch screen functional shortcut keys. For the device with face grouping function (MENU--System--Log Settings--1:G Verify), the definition method of shortcut keys is described as follows:

(1) Click the **Shortcut Def.** item to display the list of the existing shortcut keys; click the shortcut key to modify, as shown in figure 1. Enter the edit screen, and click **Function** box, as shown in figure 2. Enter the **Function** screen, and the user can select desired settings for the type of the shortcut keys according to practical needs, such as 1-5 groups of faces(Enable Group Verify Function), undefined and status.



(2) The user can set the shortcut key as status key; click the **Status**, as shown in figure 3 above; enter the edit screen of the status key, as shown in figure 1 below; click the **Label** box, as shown in figure 2 below; enter the **Label** screen, as shown in figure 3 below; click the row of the label (six options for the status) to change it to the corresponding label; the user can modify the label of the status key according to practical needs.

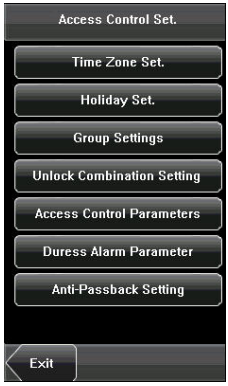


(3) The **Code** cannot be modified; it is changed accordingly with the selected label of the status key. Select **Auto switch**, and select "**On**", as shown in figure 1 below.

(4) Click the time box after "week", as shown in figure 2 above, to enter the time setting screen, as shown in figure 3 above. Click the key on the touch screen to set the time; click [**OK**] to save and return to the edit screen.

(5) After the setting is completed, click [**Save**] to save the setting and return to the **Shortcut Def.** screen.

6.7 Access Settings★



Access control settings are to set user's open door time zone, control lock and set related device parameters. It is not enabled by factory default, you can click 【**MENU**】--【System】--【Display】--【Enable access】,Select YES or NO.

To unlock, the enrolled user must accord with the following conditions:

1. The current unlock time should be in the effective time of the user time zone or group zone.

2. The group where the user is must be in access control (or in the same access control with other group, to open the door together).

The new enrolled user is under the first group by default, and use the No. 1 group time zone, the No. 1 access control group. The new enrolled user is in unlocking state (if you have modified the related settings of access control, the system will be changed with the modification).

6.7.1 Time zone setting

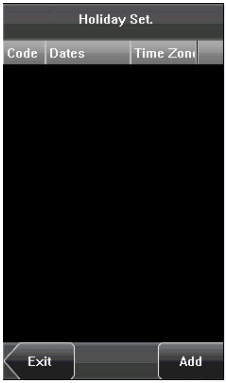
Time zone is the minimum unit of access control option. The whole system can define 50 time zones. Every time zone consists of seven time sections (that is, one week). Every time section is the effective time zone within 24 hours every day. Every user can set 3 time zones. It's "or" between the three zones. It is effective if only one is satisfied. Every time section format is **HH:MM-HH:MM**, namely, accurate to minute.

If end time is smaller than start time (23:57- 23:56), the whole day is forbidden. If end time is bigger than start time (00:00- 23:59), it is effective section.

Effective time zone for user unlocking: 00:00-23:59 or end time is bigger than start time.

✍ **Notice:** System default time zone 1 as whole day open (namely, the new enrolled user is unlocking).

6.7.2 Holiday setting



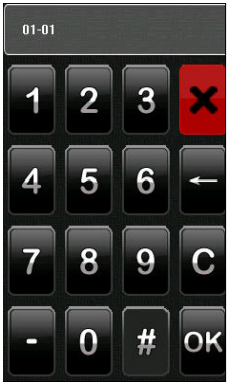
Special access control time may be needed during holidays. It is different to modify everybody's access control time. So a holiday access control time can be set, which is applicable for all employees.

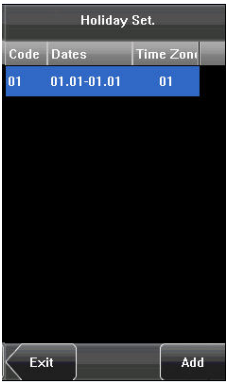
1. Add holiday:

(1) Enter holiday add interface, press the key to edit the items.

(2) Press the touch screen number key to set the value, after setting, press [OK] to save, and press [X] for exit and return to the previous interface.

(3) Press [Save] to save the current information and return to the previous interface; press [Exit] directly to return to the previous interface without saving the current information.





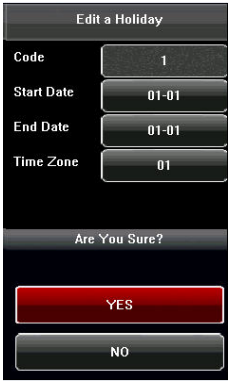
2. Edit holiday

Select the holiday to be edited and enter the edit interface. The edit operation is similar to add holiday. After editing, press [Save] to save and return to the previous interface.

✍ **Notice**: If holiday access control time is set, user's open door time zone during holiday is subject to the time zone here.

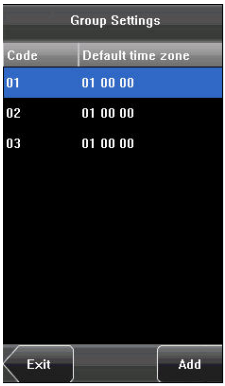
3. Delete holiday

Select the holiday to be deleted. Press **[Delete]** to popup the confirm interface as follows. Select [Yes] to delete this holiday, otherwise select [No] to cancel the operation.



6.7.3 Group time zone setting

Grouping is to manage employees in groups. Employees in group use group time zone by default. Group members can also set user time zone. Every group can hold three time zones. The new enrolled user belongs to Group 1 by default and can also be allocated to other groups.



1. Add group time zone

(1) Enter the Add Group interface; press the key to edit the items.

Code: Enter the number edit interface to set the value.

VerType: Select the Group Verify Type.

Holiday No.: Select if the Time zone is valid in holiday.

Time Zone: Select the Group Time Zone.

(2) After editing, press [Save] to save the current information and return to the previous interface; press [Exit] directly to return to the previous interface without saving the current information.

Note:

(1) RF means ID card verification. Only the products with the built-in ID card module support the ID card verification.

(2) For Multi-combination verification, please refer to Appendix 4 Multi-combination Authentication Mode.

Notice:

(1) If the holiday is valid, only when there is an intersection between group zone and holiday time zone, can the group member open the door.

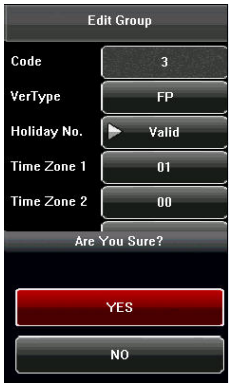
(2) If the holiday is invalid, the access control time of group member won't be affected by holiday.

2. Edit group time zone

Press the line to be edited, and enter the edit interface. After editing, press [Save] to save the current information and return to the previous interface; press [Exit] directly to return to the previous interface without saving the current information.

3. Delete group time zone

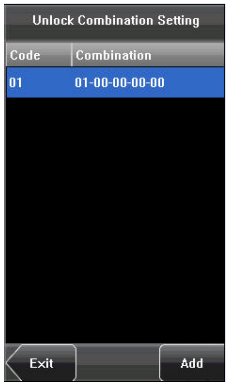
Select the line to be deleted. Press **[Delete]** to popup the confirm interface as follows. Select [Yes] to delete this holiday, otherwise select [No] to cancel the operation.



6.7.4 Unlock Combination Setting

Make various groups into different access controls to achieve multi-verification and improve security. An access control can be made up of 5 groups at most.

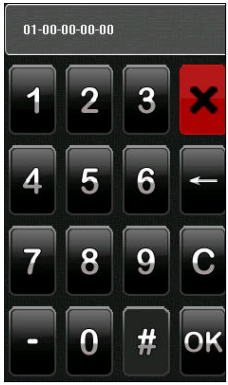
1. Add Unlock Combination



(1) Enter holiday add Combination Setting interface, press the key to edit the items.

(2) Press the touch screen number key to set the value, after setting, press [OK] to save, and press [X] for exit and return to the previous interface.

(3) Press [Save] to save the current information and return to the previous interface; press [Exit] directly to return to the previous interface without saving the current information.

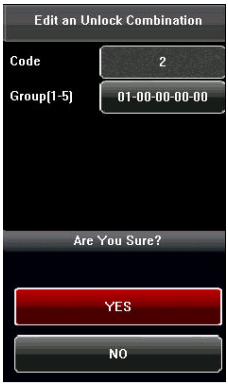


2. Edit Unlock Combination

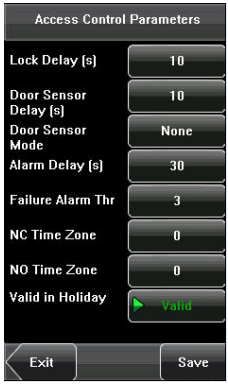
Select the line to be edited. Press the item directly to enter the edit interface. After editing, press [Save] to save the current information and return to the previous interface; press [Exit] directly to return to the previous interface without saving the current information.

3. Delete Unlock Combination

Select the line to be deleted. Press **[Delete]** to popup the confirm interface as follows. Select [Yes] to delete this holiday, otherwise select [No] to cancel the operation



6.7.5 Access control parameter



Through the [Access] menu, you can set the parameters of the electronic locks and related access control devices.

Lock Delay: Indicates the duration for the device to place the electric lock in open state. (Value scope: 1-10 seconds)

Door Sensor Delay: Indicates the delay for checking the door sensor after the door is opened. If door sensor state is inconsistent with the normal state set by the door sensor switch, an alarm will be triggered, and this period of time is regarded as the “door sensor delay”. (Value scope: 1-99 seconds)

Door Sensor Mode: Includes the None, Normally Open (NO), and Normally Closed (NC) modes. “None” indicates that the door sensor switch is not used. “NO” indicates that the door sensor is open in the normal state. “NC” indicates that the door sensor is closed in the normal state.

Alarm Delay: Indicates the duration from the detection of the door sensor exception to the generation of alarm signal. (Value scope: 1-99 seconds)

Failure Alarm Threshold: When the failed press times reach the set times, alarm signal will come out (effective value: 1-9 times).

NC Time Zone: Set time zone for access control NC. Nobody can unlock during this time zone.

NO Time Zone: Set time zone for access control NO. The lock is always in valid state during this time zone.

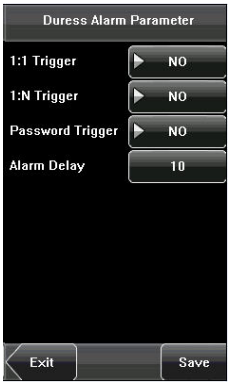
Valid in Holiday: Define time zone for NO or NC. Whether the time zone set in holiday time zone is valid.

✍ **Notice**:

1. If the Time Zone of normally open or normally closed has been set, please switch door sensor to no, otherwise it will produce alarm signal during Normal close Time Zone or Normal open Time Zone.

2. If the normally open or normally closed Time Zone is not defined yet by the time, the equipment will prompt that you to define the Time Zone, and transfer you to the Time Zone interface to add.

6.7.6 Duress Alarm Parameters



There are duress alarm parameters setting in the device. When an employee comes across a duress situation, he can use the set duress alarm mode to verify. The device will open the door as usual, but the alarm signal will be sent to the alarm.

1: 1 Trigger: if select “Yes”, when user use 1: 1 match mode, alarm signal will come out. Or there is no alarm signal.

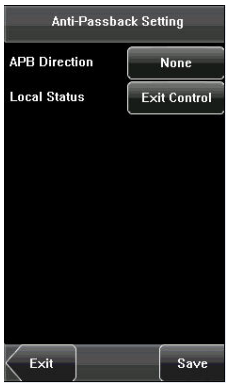
1: N Trigger: if select “Yes”, when user use 1: N match mode, alarm signal will come out. Or there is no alarm signal.

Password Trigger: If select “Yes”, when a user use password verification mode, alarm signal will come out. Or there is no alarm signal.

Alarm Delay: After duress alarm gets started, the alarm signal will not output directly. It can be defined. After the set time period, the alarm signal will be generated automatically (0-255 seconds).

6.7.7 Anti-Pass back setting

Set the device Anti-Pass back function.



APB Direction: There are four options: None, APB-Out, APB-In, APB-Out/In.

Device Status: There are three options: Exit Control, Entry Control and None.

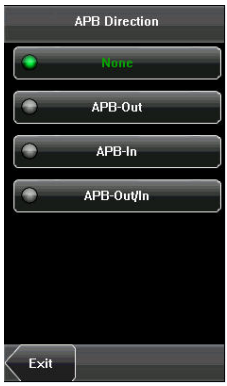
For Anti-Pass back function, please refer to Appendix 5 Anti-Pass back.

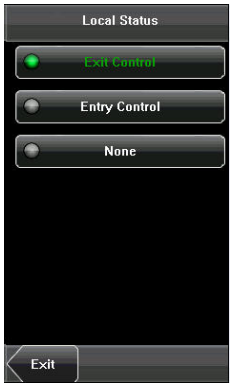
Anti-Pass back setting operation:

(1) Enter Anti-Pass back setting interface, press the key to edit the items.

(2) Press the touch screen number key to set the value, after setting, press [OK] to save, and press [X] for exit and return to the previous interface.

(3) Press [Save] to save the current information and return to the previous interface; press [Exit] directly to return to the previous interface without saving the current information.





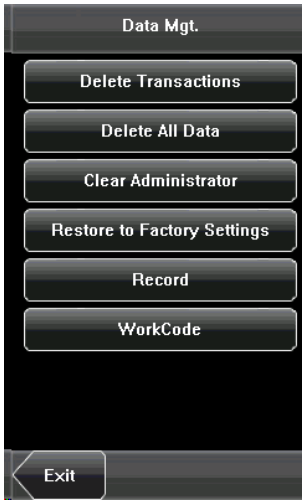
6.8 Update

You can upgrade the device firmware by using the upgrade file in the USB disk through this function.

If you need the firmware upgrade file, please contact our technical support personnel. Generally the firmware upgrade is not recommended.

7. Data Management

Through the [Data Mgt.] menu, you can perform management of data stored on the device, for example, delete the attendance records, delete all data, clear administrator, restore the device to factory settings, and query user records.



Delete Transactions: Delete all the attendance records.

Delete All Data: Delete all the information of enrolled personnel, including their fingerprints, face images and attendance records.

Clear Administrator: Change all administrators to ordinary users.

Restore to Factory Settings: Restore all parameters on the device to factory settings.

Notice: The employee information and attendance records will not be deleted during restoration to factory settings.

7.1 Query Record

After check-in successfully, the employee's attendance records are saved in the device. You can easily query these attendance records.

User ID: Enter the user ID of the employee to query. If this field is left blank, you can query the attendance records of all the employees. If you enter a user ID, you can query the attendance records of this employee.

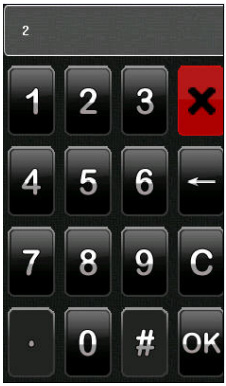
Query Time Period: Select a time period to query, including the customized time period, yesterday, this week, last week, this month, last month, and all time periods.

Start and **End**: When you select a customized time period, you need to input a start time and an end time. When you select other options for the time period, the start and end time will be automatically adjusted to the related time.

After setting the query conditions, press [Query] and the records that meet the specified query conditions will be displayed on screen.

Select the row where the desired record is located, you can query the detailed information of this record.

For example, press User ID and enter the edit interface, input the ID number and press [Query], the query result will display as below.



7.2 Work Code

Easy for users quickly deal with data of distinguish different situation. Please click **[System]--[Shortcut Definitions]--[Undefine], select [Workcode]** and save, can opening working code function**.** For detail operation in **[Data Management]--[Workcode].** Can edit, add ,delete and query.

1. Add a work code

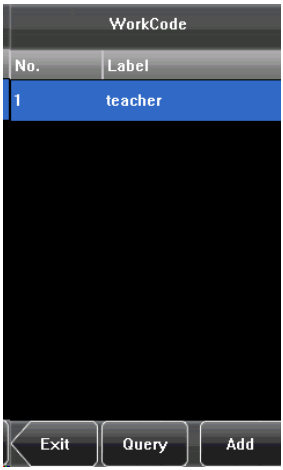
(1) Press **[Add]** on the **WorkCode** interface to display the [Add] interface as figures below:

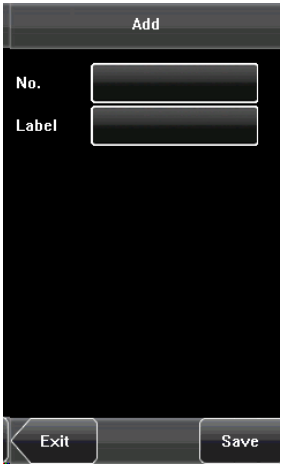
No.: A digital code of the work code.

Label: The meaning of the work code.

(2) Press the corresponding entry button of [No.] on the [Add] interface display the No. entry interface. On this interface, enter a No.

(3) Press the corresponding entry button of [**Label**] on the **Workacode** interface to display the text entry interface. On this interface, enter a label of work code. (See 12.1 T9 Input Instructions)





2. Edit and delete a work code

(1) Press the row of a work code on the **WorkCode** interface to display the [**Edit**] interface.

(2) To edit this work code, enter a new No. and label with the same operation steps as described in “Add a work code”.

(3) To delete this work code, press [**Delete**] .

(4) On the displayed prompt interface, press <**YES**> to confirm the deletion of this work code, and press <**NO**> to cancel the deletion operation.

3. Edit and delete a work code

Press **[Delete]** on the **WorkCode** interface, display the **keyboard** interface, prompt you want to query code, to enter the Number, and then click OK.

8. Date/Time Setting

8.1 Set Date/Time

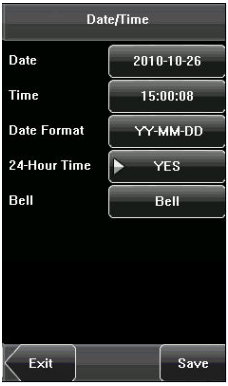
The date and time of the device must be set accurately to ensure the accuracy of attendance time.

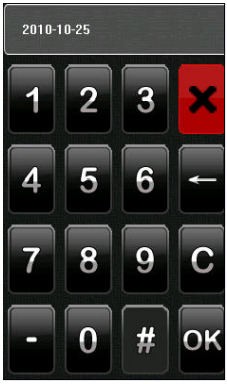
1. Press [**Menu**] on the initial interface to display the main menu interface.

2. Press [**Time/Date**] on the main menu interface to display the time setting interface.

3. Select the desired date and time by pressing the parameter. For the time format, there are 10 formats to select from. Both 12-hour and 24-hour time systems are supported.

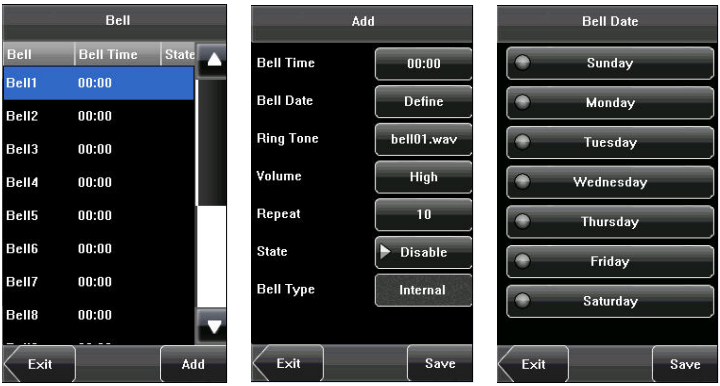
4. Press [**Save**] to save the current information and return to the previous interface. Press [**Exit**] to return to the previous interface without saving the current information.





8.2 Bell Setting★

Lots of companies need to ring their bells to signal the start and end of work shifts, and they usually manually ring their bells or use electric bells. To lower costs and facilitate management, we integrated the time bell function into the device. You can set the alarm time and duration for ringing the bell based on your requirements, so that the device will automatically play the selected ring tone and triggers the relay at the alarm time, and stop playing the ring tone after the set duration. Each device can be added with 15 alarm bells at most. Press [**Bell**] on the [Date/Time] menu to display the bell setting interface, as shown in figure below.



1. Add a bell

1) The displayed bell setting interface lists all the bells. Click [Add] to display the [Add] interface.

2) On the [Add] interface, set the following parameters:

Bell Time: This parameter is used to set a time point when the device automatically plays a bell ring tone every day.

Bell Date: This parameter is used to set which day the device automatically plays a bell ring tone.

Ring Tone: This parameter is used to set the bell ring tone.

Volume: This parameter is used to set the volume of ring tone.

Repeat: This parameter is used to set the alarm times.

State: This parameter is used to set whether to enable the bell.

Bell Type: You can select between internal ringing and external ringing. For internal ringing, the ring tone is played by the loudspeaker of the device. For external ringing, the ring tone is played by an external electric bell that is connected with the device.

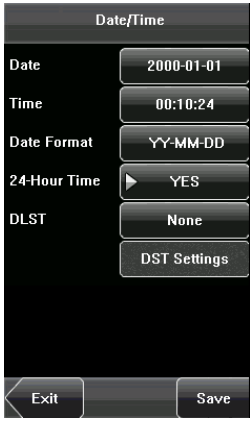
2. Edit and delete a bell

Press a bell in the list on the bell setting interface to display the [**Edit**] interface, with the similar operation as “Add a bell”.

✍ **Notice**: Only some models have this function. If you need it, please contact our business representative or technician.

8.3 Daylight Saving Time (DLST)★

DLST, also called Daylight Saving Time, is a system to prescribe local time in order to save energy. The unified time adopted during the system date is called “DLST”. Usually, the time will be one hour forward in summer. It can make people sleep early and get up early. It can also reduce lighting to save power. In autumn, the time will be recovered. The regulations are different in different countries. At present, nearly 110 countries adopt DLST.



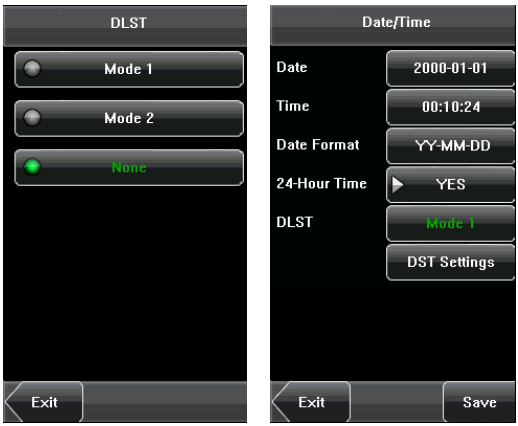
To meet the demand of DLST, a special option can be customized on our RF Card Time & Attendance recorder. Make the time one hour forward at XX (minute) XX (hour) XX (day) XX (month), and make the time one hour backward at XX (minute) XX (hour) XX (day) XX (month) if necessary.

Operation:

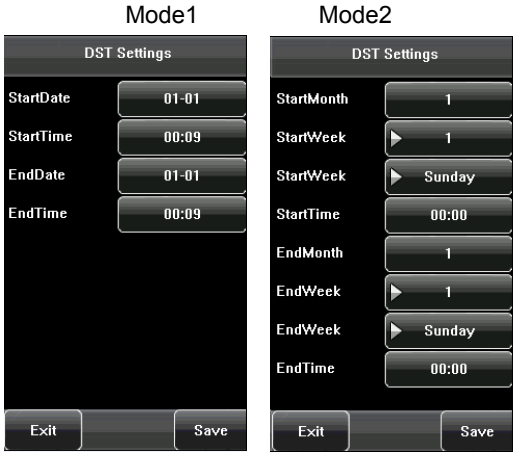
Select the DLST mode first. Including Mode 1, Mode 2 and None, the default setting is None.

1) Click [None] to display the DLST mode selecting interface.

2) Select the DLST mode and return to the Date/Time interface:



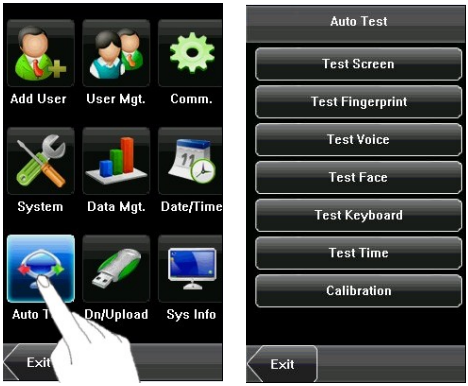
3) Click [DST settings], enter the DLST edit interface.



4) After setting, click [Save] to complete and return.

9. Auto Test

The auto test enables the system to automatically test whether functions of various modules are normal, including the screen, sensor, voice, face, keyboard and clock tests.



1. Test Screen: The device automatically tests the display effect of the color TFT display by displaying full color, pure white and pure black and checks whether the screen displays properly. You can continue the test by touching the screen or exit it by pressing [Exit].

2. Test Fingerprint★: The device automatically tests whether the fingerprint sensor works properly by checking whether the fingerprint images are clear and acceptable. When the user places his/her finger on the sensor, the collected fingerprint image is displayed on the screen in real-time. Press [Exit] to exit the test.

3. Test Voice: The device automatically tests whether the voice files are complete and the voice quality is good by playing the voice files stored in the device. You can continue the test by touching the screen,

4. Test Face: The device automatically tests whether the camera works

properly by checking whether the collected face images are clear and acceptable. Press [Exit] to exit the test.

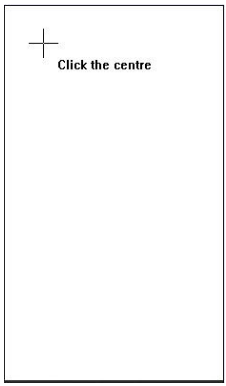
5. Test Keyboard★: The device tests whether every key on the keyboard works normally. Press any key on the [Keyboard Test] interface to check whether the pressed key matches the key displayed on screen. The keys are dark-gray before pressed, and turn blue after pressed. Press [Exit] to exit the test.

6. Test Time: The device tests whether its clock works properly by checking the stopwatch of the clock. Touch the screen to start counting, and touch it again to stop to check whether the counting is accurate. Press [Exit] to exit the test.

7. Screen Calibration:

You can perform all the menu operations by touching the screen with one of your fingers or a touch pen. When the touch screen is less sensitive to the touch, you can perform a screen calibration through menu operations.

The Screen Calibration Operation:



(1) Press [Menu] on the initial interface to display the main menu interface.

(2) Press [Calibration] on the [Auto Test] interface to display the screen calibration interface.

(3) Touch the center of the cross "+".

(4) Repeat Step 3 following the move of the "+" icon to different locations on the screen.

(5) Touch the center of the cross at five locations on the screen correctly. When the message "Calibrating screen, pls wait……" is displayed on screen, the calibration succeeds and the system automatically returns to the main menu. If the calibration fails, the system recalibration will start from Step 3.

10. USB Disk Management

Through the [**Dn/Upload**] menu, you can download user information and attendance data stored in a USB disk to related software or other fingerprint recognition equipment.

1. Download Transactions: Download all the attendance data from the device to a USB disk.

2. Download User: Download all the user information, fingerprints and face images from the device to a USB disk.

3. Download user photos★: Download the employees' photos from the device to a USB disk.

4. Upload User: Upload the user information, fingerprints and face images stored in a USB disk to the device.

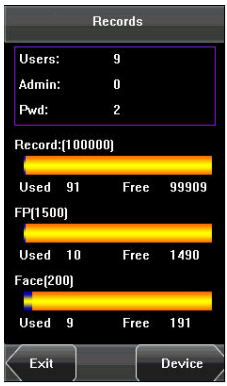
5. Upload User Photo★: Upload the JPG documents that are named after the user IDs and stored in a USB disk to the device, so that user photos can be displayed after the employee passes the verification. See Appendix 3 Photo ID Function.

11. System Information

You can check the storage status as well as version information of the device through the [System Information] option.

Records: The number of enrolled users, administrators and passwords are displayed on the [**Records**] interface; the total fingerprint storage capacity and occupied capacity as well as the total attendance storage capacity and occupied capacity are graphically displayed respectively.

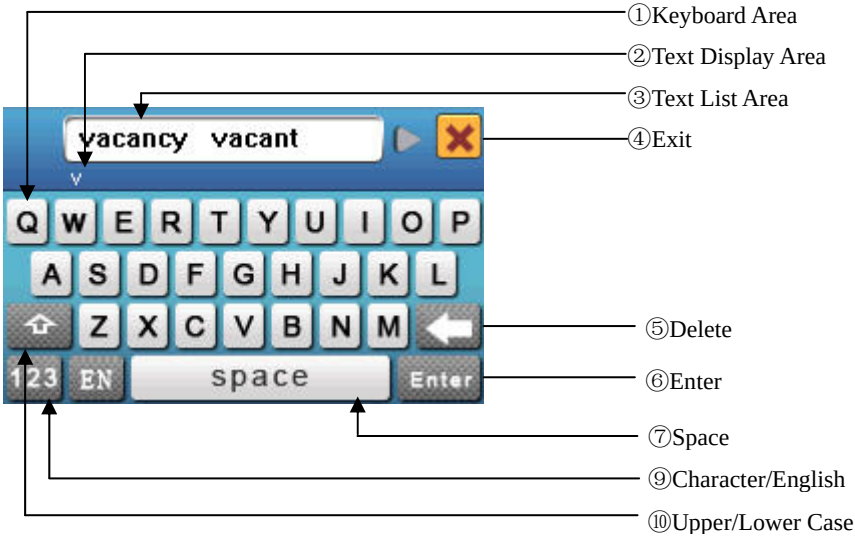
Device: The device name, serial number, version information, vendor and date of manufacture are displayed on the [**Device**] interface.



12. Appendix

12.1 T9 Input Instructions

The device supports to input English characters, numbers and symbols. Press related button to input text. For example, press [Name] to display the text input interface, as shown in the figure:



To enter a name, proceed as follows:

1. Press [Name] on the [Add] interface, as shown in figure below.

2. Enter the letter characters, and a list of characters in relation to the letter is presented in the text display area.

3. If the desired character is displayed in the text display area, press this character. And this character is at the same time displayed on the [Name] button. Enter next character by repeating Step 2.

4. After finishing the entry of name, press [X] to exit the keyboard interface and return to the previous interface.

12.2 USB Pendrive

The FRT is used as the USB Host to externally connect with a USB pen drive for data exchange.

The conventional fingerprint readers transfer data only through the RS232, RS485 or Ethernet. Bulk data transfer may take a long time due to the restriction of physical conditions. The USB far outperforms any other previous transfer modes in terms of data transfer rate. Insert the USB pen drive to the USB slot on the FRT, download data to the USB pen drive, and then connect the USB pen drive to a computer to import the data to the computer. Further, the FRT also supports the exchange of user information and fingerprint data between two devices, which helps dispense with the hassle of conventional cable connection for data transfer between the FRT and computers.

For the operations of the FRT used as the USB host, see 7. USB pen drive Management.

12.3 9-digit Enrollment Number

The standard user IDs supported by the FRT for user enrollment are 5 digits long (ranging between 1 and 65534). In practice, customers may require user IDs with digits more than 5 digits. We can customize devices supporting 9-digit user IDs to meet your needs.

12.4 Introduction of Wiegand★

Wiegand26 is an access control standard protocol established by the Access Control Standard Subcommittee affiliated to the Security Industry Association (SIA). It is a non-contact IC card reader interface and output protocol.

Wiegand26 defines the interface between the card reader and controller used in the access control, security and other related industrial fields. Wiegand26 helps standardize the work of the card reader designers and controller manufacturers. The access control products manufactured by our company are also designed by following this protocol.

Digital Signals

The figure below is a sequence diagram in which the card reader sends digital signals in bit format to the access controller. In this sequence diagram, Wiegand follows the SIA's access control standard protocol for the 26-bit Wiegand card reader (one pulse time ranges between 20 us and 100 us, and the pulse jump time ranges between 200us and 20ms). Data1 and Data0 are high level (larger than Vol) signals till the card reader prepares to send a data stream. The asynchronous low-level pulse (smaller than Vol) generated by the card reader is sent to the access control panel (The saw-tooth wave as shown in Figure below) through Data1 or Data0. Data1 and Data0 pulses will neither overlap nor be generated synchronously. The table below lists the maximum and minimum pulse width (a consecutive pulse) and pulse jump time (time between pulses) allowed by the F series fingerprint access control device.

Figure: Sequence Diagram

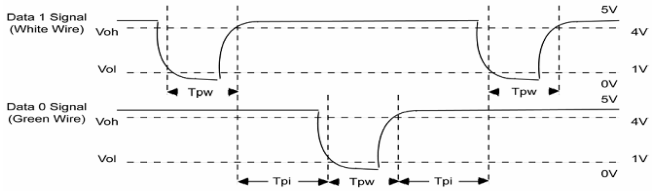
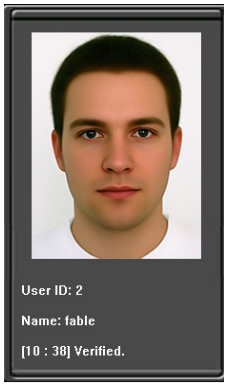


Table: Pulse Time

Symbol	Definition	Typical Value of Reader
Tpw	Pulse Width	100 μs
Tpi	Pulse Interval	1 ms

12.5 Photo ID Function★



The Photo ID function is used to display the photo enrolled by a user or stored in a USB disk on the screen in addition to such information as the user ID and name.

[Operation Steps]

1. When the photo taken by the device is used, the photo can be displayed upon successful verification.

2. To use a photo stored in a USB disk, proceed as follows:

1) Create a folder with the name of “photo” in the USB disk, and store users' photos under this folder.

2) The user photos must be in JPG format and named after their IDs. For example, for the user with the user ID of 154, the photo name must be 154.jpg.

3) Insert the USB disk into USB slot on the device, and select USB Disk Management -> Upload -> Upload Photos. Then user photos can be displayed upon successful verification.

Note:

1) The length of a user name cannot exceed 24 digits.

2) The recommended size of a user photo is less than 64 kbit.

3) The uploaded new user photo will overwrite the existing photo in related to the user ID.

4) To download user photos, select USB Disk Management -> Download -> Download User Photos. A folder with the name of “photo” will be automatically created on the USB disk, and all downloaded user photos are stored under this folder.

12.6 Work Code ★

[Function Description]

The concept of work code is introduced to facilitate the software to handle the verification records according to different cases. For example, we define "1" for eating, "2" for seeing a doctor and "3" for smoking, and input corresponding value when performing a specific action. In this way, the software can easily differentiate among events 1, 2 and 3.

[Operation Description]

You can set the **"Work Code"** by selecting **Menu → Data Management.** For details ,please refer to 7.2 Work Code.

12.7 Multi-combination Authentication Mode★

Besides this function only is owned by the fingerprint access control machine that has been appointed, most of the fingerprint machines only have two ways to verify by fingerprint and password, we provide a personal or group Multi-combination Authentication Mode for high security Access control area, verification type main include five elements that are User Number (PIN), Fingerprint (FP), Face (FACE), Password (PW) and RF card (RF), which can combine into multi-combination.

Note: The RF card is used for ID card verification, the function of ID card verification only is validity in the machine which ID card function is provided with. These symbols illustrate what follow the table different means.

- **"/" is or**
- **"+" follow next operation**
- **"&" is and**
- **FACE (Face)**
- **FP (fingerprint)**
- **PWD (Password)**

● **RF (RF card)** ● **PIN (user ID)**

If Fingerprint, Face, Password and Card have been enrolled for the user, the verification procedure is follow.

Type	What you do
FACE&PIN/FP/PW/RF	FACE+PIN or RF or PW or RF are verified
	1) PIN++FACE(1:1) 2) FP(1:N) 3) PIN+PW+“OK” 4) RF(1:N)
FP&PW	FP + PW are verified
	1) FP(1:N)+PW+“OK” 2) PIN+FP(1:1)+PW+“OK” 3) PIN+PW+“OK”+FP
FP&RF	FP + RF are verified
	1) RF+FP(1:1) 2) FP(1:N)+RF 3) PIN+FP(1:1)+RF
FACE&FP	FACE + FP are verified
	1) FP(1:N)+FACE 2) FACE(1:N)+FP 3) PIN+FACE(1:1)+FP 4) PIN+FP(1:1)+FACE
FACE&PW	FACE + PW are verified
	1) FACE(1:N)+PW+“OK” 2) PIN+FACE(1:1)+PW 3) PIN+PW+FACE
FACE&RF	FACE + RF are verified
	1) FACE(1:N)+RF

	2) PIN+FACE(1:1)+RF 3) RF(1:N)+FACE
FP	Only FP is verified.
	1) PIN+FP(1:1) 2) FP(1:N)
PW	Only PW is verified
	PIN+PW+“OK”
RF	Only RF is verified
	RF(1:N)
FACE&PIN	FACE + PIN are verified
	PIN+FACE(1:1)
FP/RF	FP or RF is verified
	1) PIN+FP(1:1) 2) RF(1:N) 3) FP(1:N)
PW/RF	FP or RF is verified
	1) PIN+PW+“OK” 2) RF(1:N)
FP/PW	FP or PW is verified
	1) PIN+FP(1:1) 2) FP(1:N) 3) PIN+PW+“OK”
PIN&FP	PIN + FP are verified
	PIN+FP(1:1)
FP&PW&RF	FP + PW + RF are verified
	1) FP(1:N)+PW+“OK”+RF 2) PIN+FP(1:1)+PW+“OK”+RF 3) RF(1:N)+PW+“OK”+FP

	4) PIN+ PW+“OK”+FP(1:1)+RF
PIN&FP& PW	PIN + FP + PW are verified
	1) PIN+PW+“OK”+FP(1:1) 2) PIN+FP(1:1)+PW+“OK”
FP & RF/PIN	FP + PIN, or FP + RF are verified
	1) RF+FP(1:1) 2) FP(1:N)+RF 3) PIN+FP(1:1)
FACE&FP&RF	FACE + FP + RF are verified
	1) FACE(1:N)+FP+RF 2) FP+FACE(1:1)+RF 3) RF(1:N)+FACE+FP 4) PIN+FP(1:1)+FACE+RF 5) PIN+FACE(1:1)+FP+RF
FACE&FP&PW	FACE + FP + PW are verified
	1) FACE(1:N) +PW+“OK”+FP 2) FP+PW+“OK”+FACE(1:1) 3) PIN+FP(1:1) +PW+“OK”+FACE 4) PIN+FACE(1:1) +PW+“OK”+FP 5) PIN+PW+“OK”+FP+FACE

Note: For combined verification, it is better to enroll all the elements in need for using verification mode, or verification will fail.

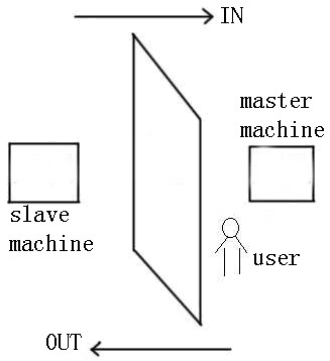
For example: User “A” use fingerprint for enrollment, while password is used for verification, then the user cannot pass the verification.

12.8 Anti-Pass Back★

【overview】

Sometimes, some illegal people follow the other one into the gate, which will cause the security problems. To prevent such risks, this function is enabled. The In record must match the Out record, or the gate won't open.

This function needs two machines to work together. One is installed inside of the door (master machine hereinafter), the other is installed outside of the door (slave machine hereinafter). Wiegand signal communication is adopted between the two machines.



【Working principle】

The master machine has Wiegand In and slave machine has Wiegand Out functions. Connect Wigand Out of slave machine to Wiegand In of master machine. Wiegand output from slave machine must not own machine ID. The number sent to master machine from slave machine must be found in the master machine.

【Function】

Judge whether it is anti-pass back according to user's recent in-out record. In record and out record must be matched. This machine supports out, in, or

out-in anti-pass back.

When the master machine is set as “out anti-pass back”, if user wants to come in and go out normally, his recent record must be “in”, or he cannot go out. Any “out” attempt will be refused by “anti-pass back” function. For example, a user’s recent record is “in”, his second record can be “out” or “in”. His third record is based on his second record. Out record and in record must match.（Notice: If customer has no record before, then he can come in but cannot go out.)

When the master machine is set as “in anti-pass back”, if the user wants to come in and go out normally, his recent record must be “out”, or he cannot go out. Any out record will be “anti-pass back refused” by the system. (Notice: If the customer has no former record, then he can go out, but cannot come in).

When the master machine is set as “out-in anti-pass back”, if the user wants to come in and go out normally, if his recent record is “out” and “in”, then his next record must be “in” and “out”.

【operation】

1. Select model

Master machine: The machine with Wiegand in function, except for F10 reader.

Slave machine: The machine with Wiegand Out function.

2. Menu setting

Anti-pass back

There are four options: in/out anti-pass back, out anti-pass back, in anti-pass back, and none.

Out anti-pass back: Only user’s last record is in-record, can the door be open.

In anti-pass back: Only user’s last record is out-record, can the door be open.

Device status: There are three options: Control-in, control-out and none

Control-in: When it is set, the verified records on the device are in-records.

Control-out: When it is set, the verified records on the device are out-records.

None: When it is set, close the device's anti-pass back function.

3. Modify device's Wiegand output format

When the two devices are communicating, only the Wiegand signals without device ID are received. Enter device menu－> communication option－> Wiegand option or enter software -> basic setting -> device management -> Wiegand, to modify "defined format" as "wiegand26 without device ID".

4. Enroll user

The user must be on master machine and slave machine at the same time, and user PIN must be the same. Therefore, it is necessary to enroll user on master machine and slave machine at the same time.

5. Connection instruction

Wiegand communication is adopted for master machine and slave machine. Refer to the following for connection:

Master		Slave
IND0	<----->	WD0
IND1	<----->	WD1
GND	<----->	GND

12.9 Statement on Human Rights and Privacy

Dear Customers:

Thank you for choosing the hybrid biometric products designed and manufactured by us. As a world-renowned provider of biometric technologies and services, we pay much attention to the compliance with the laws related to human rights and privacy in every country while constantly performing research and development.

We hereby make the following statements:

1. All of our fingerprint recognition devices for civil use only collect the characteristic points of fingerprints instead of the fingerprint images, and therefore no privacy issues are involved.
2. The characteristic points of fingerprints collected by our products cannot be used to restore the original fingerprint images, and therefore no privacy issues are involved.
3. We, as the equipment provider, shall not be held legally accountable, directly or indirectly, for any consequences arising due to the use of our products.
4. For any dispute involving the human rights or privacy when using our products, please contact your employer directly.

Our fingerprint products for police use, or development tools support the collection of the original fingerprint images. As for whether such a type of fingerprint collection constitutes an infringement of your privacy, please contact the government or the final equipment provider. We, as the original equipment manufacturer, shall not be held legally accountable for any infringement arising thereof.

The law of the People's Republic of China has the following regulations regarding the personal freedom:

1. Unlawful arrest, detention or search of citizens of the People's Republic of China is prohibited; infringement of individual privacy is prohibited.
2. The personal dignity of citizens of the People's Republic of China is inviolable.
3. The home of citizens of the People's Republic of China is inviolable.
4. The freedom and privacy of correspondence of citizens of the People's Republic of China are protected by law.

At last we stress once again that biometrics, as an advanced recognition technology, will be applied in a lot of sectors including e-commerce, banking, insurance and legal affairs. Every year people around the globe suffer from great loss due to the insecurity of passwords. The biometric products actually provide adequate protection for your identity under a high security environment.

12.10 Environment-Friendly Use Description

The Environment Friendly Use Period (EFUP) marked on this product refers to the safety period of time in which the product is used under the conditions specified in the product instructions without leakage of noxious and harmful substances.

The EFUP of this product does not cover the consumable parts that need to be replaced on a regular basis such as batteries and so on. The EFUP of batteries is 5 years.

Names and Concentration of Toxic and Hazardous Substances or Elements

Parts Name	Toxic and Hazardous Substances or Elements					
	Pb	Hg	Cd	Cr6+	PBB	PBDE
Chip resistor	×	○	○	○	○	○
Chip capacitor	×	○	○	○	○	○
Chip inductor	×	○	○	○	○	○
Chip diode	×	○	○	○	○	○
ESD components	×	○	○	○	○	○
Buzzer	×	○	○	○	○	○
Adapter	×	○	○	○	○	○
Screws	○	○	○	×	○	○

○: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.

×: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006.

Note: 80% of the parts in this product are manufactured with non-hazardous environment-friendly materials. The hazardous substances or elements contained cannot be replaced with environment-friendly materials at present due to technical or economical constraints.